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EXAMINER
CUNNINGHAM, GREGORY F

ART UNIT	PAPER NUMBER
2676	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,560	SAUND ET AL.	
	Examiner	Art Unit	
	Gregory F. Cunningham	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☒ Claim(s) *8,12 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications of amendment received 11/10/2004.

2. The disposition of the claims is as follows: claims 1-15 are pending in the application. Claims 1 and 13 are independent claims. Claims 16 - 25 drawn to non-elected invention have been cancelled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushey, (PGPUB-DOCUMENT-NUMBER: 20030001851), and further in view of Cunningham et al., (US 5,041,992 A).

A. Bushey discloses claim 1, "An image analysis and conversion method comprising: receiving a bitmapped image; and determining perceptually salient structures in the bitmapped image; each perceptually salient structure correlating to a distinct area of the bitmapped image; converting the determined perceptually salient structures into structured object representations of the bitmapped image, the structured object representations being symbolic representations of the perceptually salient structures which are editable by a structured text/graphics editor [para. 0005 at 'Recognition software exists today which will transform a bit map or raster graphics digital

image into an object-oriented graphic representation of the digital image. These algorithm vary in capability and the graphical representation of the digital image is a direct function of the capability of the algorithm used in the conversion. For instance, if this algorithm is used on the digital image of a person, the quality of the appearance of the graphic image of the person is a direct function of the quality of the algorithms which convert the raster digital image of the person into an object-oriented graphical representation of the person.'; and

para. 0010, at 'The need for effectively and efficiently processing both object-oriented and bit map graphics and images is achieved by a system for and method of combining both object-oriented (or "vector") graphics and raster scan (or "bit-mapped" or "bit map" image) pipelines so that image data can be processed by selected stages of either and/or both pipelines. That is, an object-oriented graphics pipeline may include several processing stages configured to sequentially process graphics data, the graphics data may include data to generate one or more graphic primitives, such as points, lines, polygons, alphanumeric characters, special symbols and fonts, etc. Examples of possible graphic processing stages in the object-oriented graphic pipeline may include some combination or subcombination of scan conversion, clipping, windowing to viewport, projection, sorting and/or may include other or substitute functionalities and others. Similarly, a bit-mapped or raster scan pipeline may include several processing stages configured to sequentially process bit-mapped data representing an image as a plurality of pixel luminance values and/or other pixel characteristics. These bit-mapped or raster scan pipeline processing stages may include some combination or subcombination of demosaicing, color correction/white balancing, gamut mapping, tone correction, flare correction, color transformation, scaling and/or may include other or substitute functionalities and others. Advantageously, the processor

provides for selective sequencing through each pipeline and for "cross-over" of data between stages of each pipeline including any necessary data conversion (e.g., polygon recognition and conversion of bit-mapped images to form object-oriented graphic data, and similar conversion of object-oriented graphic format data into a bit map data format.); and

para. 0013 at 'According to another feature of the invention, the graphics pipeline is configured to receive graphics data including graphics identification and location data and the bit-mapped image pipeline is configured to receive a raster scanned image data representing pixel luminance information. A data format converter may be included and configured to convert between an object-oriented graphics data format and a bit map image data format, i.e., unidirectionally from one, or bidirectionally from either format to the other.'; and

para. 0014 at 'According to another feature of the invention, an image recognition stage may be configured to identify and encode object-oriented graphic images within the bit-mapped image. For example, the recognition stage may recognize primitive elements and shapes including polygons, polyhedrons, lines, planes, curves, arcs, points, vectors, characters, symbols, and other primitives and composite graphic structures within a bit map or raster based representation and convert the same into an appropriate object-oriented graphic data representation. The conversion may include deletion of the converted portions from the original bit map image so that a remaining portion of the latter can be appropriately processed while the converted objects are subject to graphics pipeline processing. A common instruction decoder may be included, operable to control the interconnection (e.g., a switching matrix) to route at least one of the graphic objects and the bit-mapped image object between both the graphics and bit-mapped image pipelines.'; and para. 0018 and 0033]" supra [as detailed].

Wherein 'primitive elements and shapes including polygons, polyhedrons, lines, planes, curves, arcs, points, vectors, characters, symbols, and other primitives and composite graphic structures within a bit map or raster based representation' correspond to "perceptually salient structures in the bitmapped image"; 'Recognition' implies "receiving" having occurred and 'transform' corresponds to "converting".

Likewise Polimeni et al., (U.S. Patent 5,874,966 A), discloses similar ideas in col. 7, lns. 40-54 that [arbitrary, imported, color bitmap image is set as the graphical scene displayed as the graphical user interface for the computer. The process proceeds to step 180 where major objects in the scene are automatically identified by the computer. A major object is an object shown in the selected color bitmap image having a plurality of pixels of a selected characteristic. In accordance with one aspect of the present invention, that selected characteristic is the color displayed by pixels in the bitmap image. Therefore, the present invention automatically identifies major objects in the scene presented by the graphical user interface by identifying objects having groups of pixels that are substantially the same color.]

However, Bushey does not appear to disclose "which are editable by a structured text/graphics editor", but Cunningham et al., (US 5,041,992 A), do in col. 6, lns. 23-52 at [Bit maps may be generated directly with bit map editors that display a large pixel representation of the bit map upon a display screen and allow the programmer to black in or clear individual pixels. Use of such a bit map editor is obviously tedious. Another form of graphics editor is known as a object graphics editor. Object graphics editors respond to commands to draw and erase lines and circles and other shapes and to fill and clear specified areas. The graphics editor builds a list of commands for describing an image. Before the object graphics generated image

can be displayed on a bit mapped display, it must be converted to a bit map. Object graphics editors often include such a utility. An object graphics editor known as "Sketch" is available as a drawing program for the Interlisp-D environment. It enables the interactive construction of figures from a combination of text and graphics. A sketch created by the "Sketch" program consists of elements such as text, lines and curves, boxes, circles and ellipses. Each element has one or more positions that determine the location and shape and a set of properties that determine how it looks. Sketch is an interactive graphics editor in that locations upon the display may be designated by use of a mouse cursor and mouse events. Object graphics editors are known in the art. "Sketch" is described in A Users Guide To Sketch-The Interlisp Drawing System, Xerox Corporation, 1985. "McDraw" is an object graphics editor widely known to Apple Macintosh users.]

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply recognition software disclosed by Bushey in combination with object graphics editor disclosed by Cunningham et al., and motivated to combine the teachings because use of an object graphics editor would not be tedious as opposed to a bit graphics editor, as revealed by Cunningham et al., in col. 6, lines 23-28.

B. Per independent claim 13, this is directed to a system for performing the method of independent claim 1, and therefore is rejected to independent claim 1.

5. Claims 2, 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushey, (PGPUB-DOCUMENT-NUMBER: 20030001851), further in view of Cunningham et al., (US 5,041,992 A), as applied to claims 1 and 13 above, and further in view of Withgott et al., (US Patent 5,491,160), hereinafter Withgott.

A. Bushey and Cunningham disclose claim 2, "The method according to claim 1 wherein the receiving step includes, scanning a non-electronic generated image into the bitmapped image" supra for claim 1.

However Bushey and Cunningham do not appear to disclose, "wherein the receiving step includes, scanning a non-electronic generated image into the bitmapped image", but Withgott does in col. 6, ln. 64 – col. 7, ln. 23 at [The electronic document image to be processed is created in any conventional manner, for example by a conventional scanning means such as those incorporated within a document copier or facsimile machine, a Braille reading machine, or by an electronic beam scanner or the like. Such scanning means are well known in the art, and thus are not described in detail herein. An output derived from the scanning is digitized to produce undecoded bit mapped image data representing the document image for each page of the document, which data is stored, for example, in a memory 15 of a special or general purpose digital computer data processing system 13.]

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply recognition software disclosed by Bushey in combination with object graphics editor disclosed by Cunningham et al., coupled with a copy scanner disclosed by Withgott, and motivated to combine the teachings because the output derived from the scanning is digitized to produce undecoded bit mapped image data representing the document image, as revealed by Withgott et al., in col. 7, lines 7-17, and because use of an object graphics editor would not be tedious as opposed to a bit graphics editor, as revealed by Cunningham et al., in col. 6, lines 23-28.

B. Bushey and Cunningham disclose claim 3, "The method according to claim 1 wherein the bitmapped image received in the receiving step is an originally generated electronic bitmapped image" supra for claims 1 and 2. However Bushey and Cunningham do not appear to disclose, "wherein the bitmapped image received in the receiving step is an originally generated electronic bitmapped image", but Withgott does in col. 6, ln. 64 – col. 7, ln. 1 at 'With reference first to FIG. 2, the method is performed on an electronic image of an original document 5, which may include lines of text 7, titles, drawings, figures 8, or the like, contained in one or more sheets or pages of paper 10 or other tangible form' wherein 'the method is performed on an electronic image of an original document' corresponds to "an originally generated electronic bitmapped image".

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply recognition software disclosed by Bushey in combination with object graphics editor disclosed by Cunningham et al., coupled with a copy scanner is performed on an electronic image of an original document disclosed by Withgott, and motivated to combine the teachings because the output derived from the scanning is digitized to produce undecoded bit mapped image data representing the document image, as revealed by Withgott et al., in col. 7, lines 7-17, and because use of an object graphics editor would not be tedious as opposed to a bit graphics editor, as revealed by Cunningham et al., in col. 6, lines 23-28.

C. Bushey and Cunningham disclose claim 4, "The method according to claim 1 wherein the converting step includes, altering the bitmapped image into multiple alternative interpretations" supra for claim 1. However Bushey and Cunningham do not appear to disclose, "wherein the converting step includes, altering the bitmapped image into multiple alternative interpretations",

but Withgott does in col. 22, lns. 15-27 at 'The determined image characteristic(s), e.g., the derived image unit shape representations of each selected image unit are compared, as noted above (step 841), with the determined image characteristic(s)/derived image unit shape representations of the other selected image units for the purpose of identifying equivalence classes of image units (step 850), such that each equivalence class contains most or all of the instances of a given word in the document. The equivalence classes are thus formed by clustering the image units in the document based on the similarity of image unit classifiers, without actually decoding the contents of the image units, such as by conversion of the word images to character codes or other higher-level interpretation.' and in col. 8, lns. 22-32 at 'A morphological operation refers to an operation on a pixelmap image (a source image), that uses a local rule at each pixel to create another pixelmap image, the destination image. This rule depends both on the type of the desired operation to perform as well as on the chosen structuring element.' and furthermore in para. (25, 67, 93 and 116). Wherein 'equivalence classes', 'morphological operation' and 'time warping' implementations, each correspond to "altering the bitmapped image into multiple alternative interpretations".

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply recognition software disclosed by Bushey in combination with object graphics editor disclosed by Cunningham et al., coupled with 'equivalence classes', 'morphological operation' and 'time warping' disclosed by Withgott, and motivated to combine the teachings because for automatically generating ancillary document images reflective of the contents of an entire primary document image, as revealed by Withgott et al., in col. 3, lines 13-

17, and because use of an object graphics editor would not be tedious as opposed to a bit graphics editor, as revealed by Cunningham et al., in col. 6, lines 23-28.

6. Claims 5, 9, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushey, (PGPUB-DOCUMENT-NUMBER: 20030001851), further in view of Cunningham et al., (US 5,041,992 A), as applied to claims 1 and 13 above, further in view of Withgott et al., (US Patent 5,491,160), hereinafter Withgott, and further in view of Microsoft Paint, hereinafter Paint.

A. Bushey, Cunningham and Withgott disclose claim 5, "The method according to claim 4 wherein the altering of the bitmapped image into multiple alternative interpretations includes, altering the bitmapped image into informal structured object representations that are editable by the structured text/graphics editor, and altering the bitmapped image into formal structured object representations that are editable by the structured text/graphics editor" supra for claim 4.

However, Bushey, Cunningham and Withgott do not appear to disclose "wherein the altering of the bitmapped image into multiple alternative interpretations includes, altering the bitmapped image into informal structured object representations that are editable by the structured text/graphics editor, and altering the bitmapped image into formal structured object representations that are editable by the structured text/graphics editor". But Paint does as exemplified below in Figs 1-3. Using the 'paste from' on the 'Edit' drop down menu one can import both informal 'cursive h' and formal 'textual ON' into Paint. Then using dotted rectangle to select the informal 'cursive h' and then using the Flip/Rotate on the 'Image' drop down menu to flip/rotate in the horizontal and vertical directions to create the alternative representation of a 'cursive y'. Then using dotted rectangle to select the formal 'textual ON' and then using the

Flip/Rotate on the 'Image' drop down menu to flip/rotate in the horizontal and vertical directions to create the alternative representation of a 'textual NO'.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply recognition software disclosed by Bushey in combination with object graphics editor disclosed by Cunningham et al., coupled with 'equivalence classes', 'morphological operation' and 'time warping' disclosed by Withgott, and in concert with 'paste from' and flip/rotate' disclosed by Microsoft Paint, and motivated to combine the teachings because for automatically generating ancillary document images reflective of the contents of an entire primary document image, as revealed by Withgott et al., in col. 3, lines 13-17, and because use of an object graphics editor would not be tedious as opposed to a bit graphics editor, as revealed by Cunningham et al., in col. 6, lines 23-28, and since both informal and formal structured object representations are easily edited by 'paste from' and flip/rotate' disclosed by Microsoft Paint in Figure 3.

Figure 1

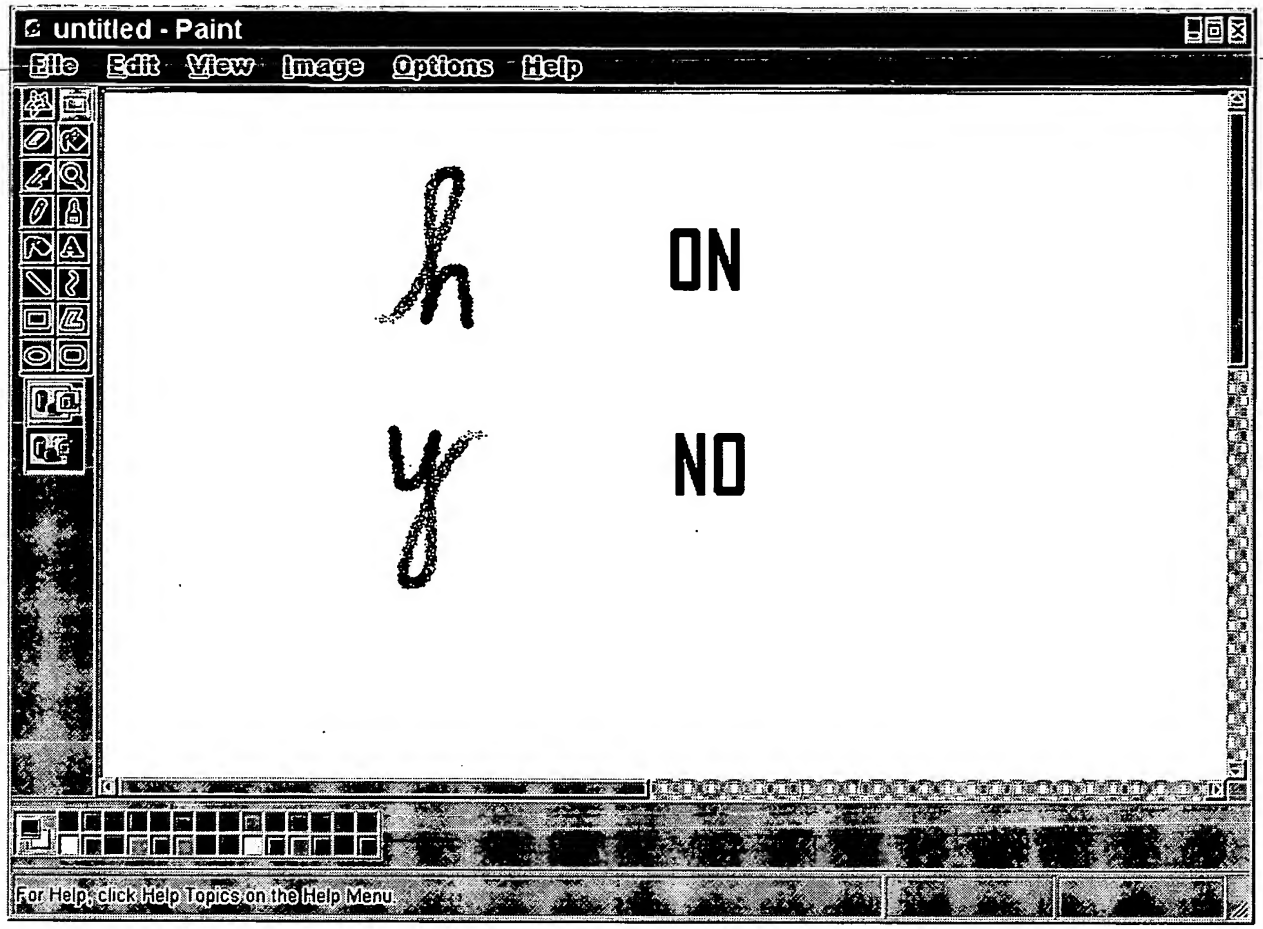

untitled - Paint
File Edit View Image Options Help
ON
NO
For Help, click Help Topics on the Help Menu.

Figure 2

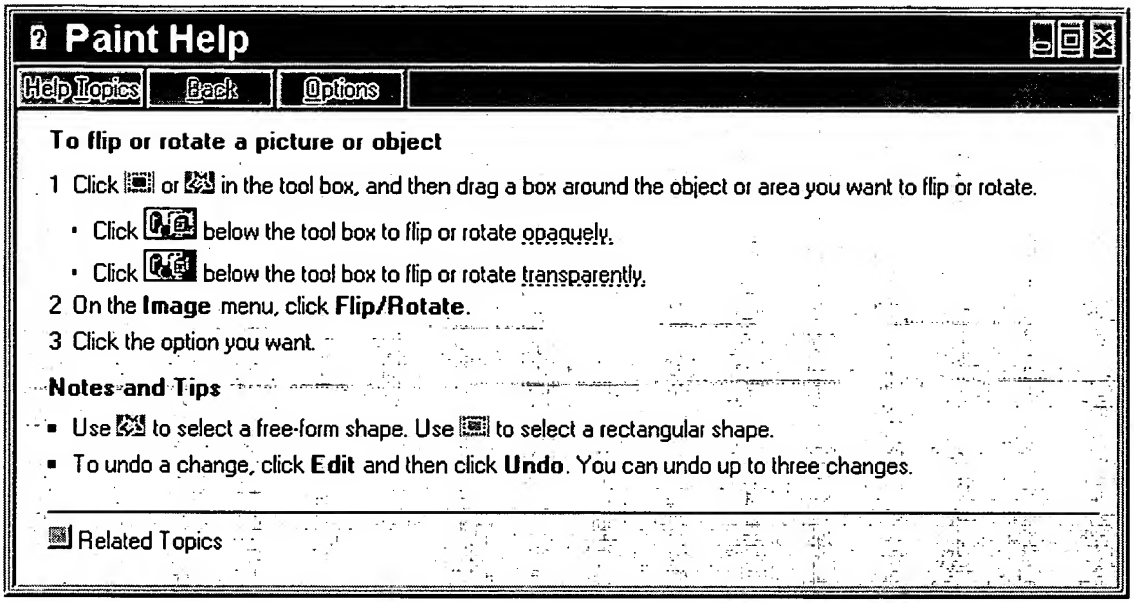
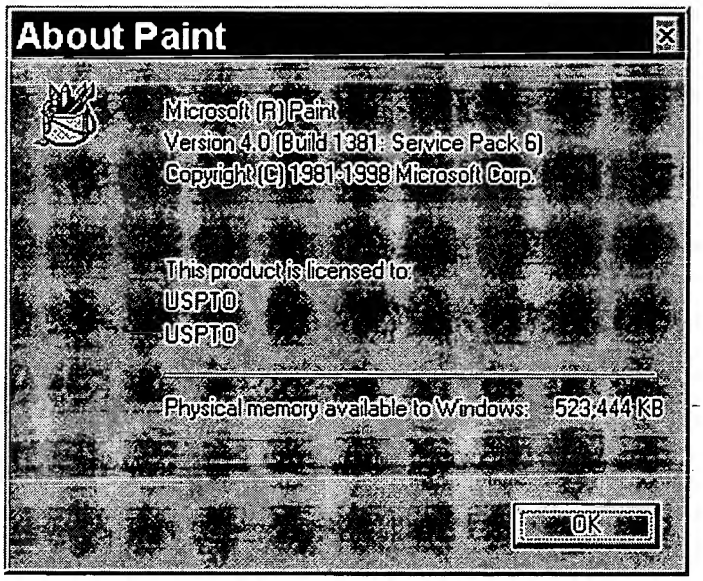


Figure 3



B. Per dependent claim 14, this is directed to a system for performing the method of dependent claim 5, and therefore is rejected to dependent claim 5.

C. Bushey, Cunningham, Withgott and Microsoft Paint disclose claim 9, "The method according to claim 1 wherein the: step of converting the bitmapped image to the structured object representations includes generating multiple structured object representations of the bitmapped image, the multiple structured object representations, representing at least a first image representation having formal structured object representations, and a second image representation containing informal structured object representations" supra for claim 5. Wherein 'h' and 'y' correspond to informal and 'ON' and 'NO' correspond to formal.

D. Bushey, Cunningham, Withgott and Microsoft Paint disclose claim 10, "The method according to claim 1 wherein the editing by the structured text/graphics editor permits movement of structured object representations by at least one of, individual objects, a sub-group of all the structured objects, or as an overall group of the structured object representations" supra for claim 5. Wherein 'y' and 'NO' correspond to "movement as an overall group of the structured object representations".

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushey, (PGPUB-DOCUMENT-NUMBER: 20030001851), and further in view of Cunningham et al., (US 5,041,992 A) as applied to claim 1 above, and further in view of Ohmori et al., (US Patent 6,678,397 B1), hereinafter Ohmori.

A. Bushey and Cunningham disclose claim 6, "The method according to claim 1 wherein the step of converting the bitmapped image into structured object representations of the bitmapped image includes configuring the structured object representations to represent an electronic slide of the structured text/graphics editor" supra for claim 1. However, Bushey and Cunningham do not appear to disclose "to represent an electronic slide", but Ohmori does in col. 8, lns. 35-40.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply editing scanned documents disclosed by Bushey and Cunningham in combination with representing an electronic slide of the structured text/graphics editor as disclosed by Ohmori, and motivated to combine the teachings because it would display as revealed by Ohmori in col. 8, lines 1-8.

B. Bushey and Cunningham disclose claim 7, "The method according to claim 1, wherein the converting step includes forming of an Alternative graph" supra for claim 1. However, Bushey and Cunningham do not appear to disclose "forming of an Alternative graph", but Ohmori does in col. 12, lns. 1-12.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply editing scanned documents disclosed by Bushey and Cunningham in combination with forming of an Alternative graph as disclosed by Ohmori, and motivated to combine the teachings because it would show how converting progresses as revealed by Ohmori in col. 12, lines 8-12.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bushey, (PGPUB-DOCUMENT-NUMBER: 20030001851), further in view of Cunningham et al., (US 5,041,992 A), and further in view of Smith et al., (PGPUB-DOCUMENT-NUMBER: 20040257367), hereinafter Smith.

A. Bushey and Cunningham disclose claim 11, "The method according to claim 1 wherein the bitmapped image is converted into the structured objects representations of the bitmapped image through the use of an Alternative Graph" supra for claim 1. However Bushey and Cunningham do not appear to disclose "wherein the bitmapped image is converted into the

structured objects representations of the bitmapped image through the use of an Alternative Graph", but Smith does in [para. 0047] at 'The graph structure illustrated in FIG. 4 is a simplified representation of one possible graph structure usable to implement an embodiment of the invention. One skilled in the art will appreciate that alternative graph structures may equivalently be used within the scope of this embodiment of the invention. In the illustrated structure, each node 300 represents an operation such as "blur," "rotate," and so on. Each operation may have parameters associated with it, such as "amount of blur," "angle of rotation," etc. Leaf nodes 302 and 304 contain or generate image sprites, while other nodes represent operations that manipulate or transform these sprites. The root node 306 is the desired output of the graph.'

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply editing scanned documents disclosed by Bushey and Cunningham in combination with alternative graph as disclosed by Smith, and motivated to combine the teachings because it would show how converting progresses as revealed by Smith in [para. 0047].

Allowable Subject Matter

9. Claims 8, 12 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

12. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Inquiries

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784. The examiner can normally be reached on Mon. - Thurs. 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J.F. Cunningham

gfc

4/5/2004

Gregory F. Cunningham
Examiner
Art Unit 2676

Matthew C. Bella

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